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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/900,329	07/06/2001	Toru Aihara	JP9-2000-0129	5624
877	7590	09/27/2004	EXAMINER	
IBM CORPORATION, T.J. WATSON RESEARCH CENTER P.O. BOX 218 YORKTOWN HEIGHTS, NY 10598			LELE, TANMAY S	
			ART UNIT	PAPER NUMBER
			2684	8

DATE MAILED: 09/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/900,329

Applicant(s)

AIHARA ET AL.

Examiner

Tanmay S Lele

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 16 – 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 16 – 18 contain the trademark/trade name “BLUETOOTH.” Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe a local area wireless connection standard and accordingly, the identification/description is indefinite.

Regarding claims 16 –18, note that the use of “*protocols*” (for example, Bluetooth or the 802.11 family), protocols and standards change over time, hence, it is inappropriate to have the scope of a claim change with time. Since organizations implementing standards meet regularly and have the authority to modify standards, any connection a claim may have to these standards may vary over time. The other aspect arising

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from this is enablement. If the standard changes, the disclosure may no longer support the limitation. If the scope of the invention sought to be patented cannot be determined from the language of the claims, a second paragraph rejection is appropriate (In re Wiggins, 179 USPQ 421).

In further regards to claim 18, it was not understood if “receiving communications conditions with other radio stations” involved communications with other slave (or child) units. For purposes of examination it was assumed such could not occur. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3 – 10, 12, 14, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Minamisawa (Minamisawa, US Patent No. 6,026,303).

Regarding claims 1, Minamisawa teaches of a communication method for a group communication, the method forming a predetermined cluster among a plurality of radio stations and selecting a cluster head managing the cluster (Figure 1), comprising the steps of: operating one of the radio stations belonging to the cluster as a tentative cluster head (column 2, lines 29 – 57); determining the communication efficiency when the radio station becomes the tentative cluster head (column 2, lines 37 – 45); and selecting a cluster head in the cluster among the radio stations composing the cluster based on the determined communication efficiency (column 2, lines 58 – 63).

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Regarding claim 3, Minamisawa teaches all the claimed limitations as recited in claim 1. Minamisawa further teaches of further comprising the steps of: generating a schedule that determines an operation for circulating the radio stations as a tentative cluster head and an operation for the rest of each radio station composing the cluster to try to connect to the tentative cluster head (column 2, lines 44 –63 and column 12, lines 25 –33); and operating the radio stations composing the cluster synchronously based on the generated schedule (column 2, lines 44 –63 and column 9, lines 41 –62 and column 6, lines 35 –45).

Regarding claim 4, Minamisawa teaches all the claimed limitations as recited in claim 1. Minamisawa further teaches of comprising the steps of: determining an operation to return to an original cluster configuration after operating as the tentative cluster head (starting column 2, line 64 and ending column 3, line 11; note that units return to the cluster after serving as temporary parent as per column 1, lines 31 –63) and a recover operation when being unable to return to the original cluster configuration as a recovery schedule in advance (column 11, lines 35 –43); and operating the radio stations composing the cluster synchronously based on the recovery schedule (starting column 2, line 64 and ending column 3, line 11 and column 6, lines 36 –45).

Regarding claim 5, Minamisawa teaches of a radio ad-hoc network composing a cluster that is composed of a node of a cluster head and one or more nodes of cluster members (Figure 1), wherein the node of the cluster head comprehends its own communication conditions with the nodes of the cluster members and generates a schedule for change of the cluster head based on the communication conditions (column 2, lines 37 –43) and distributes the schedule to the nodes of the cluster members (column

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2, lines 44 –63); and the nodes of the cluster members comprehend their own communication conditions with the nodes composing the cluster based on the distributed schedule and send the communication conditions to the node of the cluster head (column 2, lines 44 –63 and column 13, lines 54 –67).

Regarding claim 6, Minamisawa teaches all the claimed limitations as recited in claim 5. Minamisawa further teaches of wherein the node of the cluster head determines whether or not to delegate its authority as a cluster head based on the communication conditions sent from the nodes of the cluster members (column 2, lines 46 –63); and if affirmative, tries to delegate its authority to appropriate nodes (Figure 10B and column 2, lines 37 –63 and column 16, lines 52 –67).

Regarding claim 7, Minamisawa teaches all the claimed limitations as recited in claim 6. Minamisawa further teaches of wherein the node of the cluster head determines the time to return to an original cluster configuration where it continues to serve as a cluster head when failing to delegate its authority to the appropriate nodes (column 11, lines 35 –42).

Regarding claim 8, Minamisawa teaches of a radio ad-hoc network composing a cluster that is composed of a node of a cluster head and one or more nodes of cluster members (Figure 1), wherein the cluster head distributes a schedule that determines a circulation operation of a tentative cluster head on the cluster members that compose the cluster (column 2, lines 44 –63); and the cluster members comprehend as a tentative cluster head their communication conditions with other nodes based on the distributed schedule and sends the communication conditions to the cluster head (column 2, lines 44 –63 and column 13, lines 54 –67) wherein the cluster members can become a new cluster

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head based on the delegation of authority from the cluster head (Figure 10B and column 2, lines 37 –63 and column 16, lines 52 –67).

Regarding claim 9, Minamisawa teaches all the claimed limitations as recited in claim 8. Minamisawa further teaches of wherein the cluster head distributes the schedule that determines the circulation operation immediately after configuring the cluster or when a node with a high error rate is detected (column 3, lines 12 –18).

Regarding claim 10, Minamisawa teaches of a communication terminal that can be configured as one of a plurality of nodes composing a cluster as well as serve as a cluster head that allows communication with remaining nodes of cluster members, (Figure 1) comprising: means for comprehending communication conditions with the cluster members (Figures 10 A and 10B and column 2, lines 37 –45); means for recognizing communication conditions with other nodes when the cluster member becomes a tentative cluster head (column 2, lines 44 –63 and column 13, lines 54 –67); and means for determining the delegation of cluster head to a specific node based on the comprehended communication conditions and the recognized communication conditions (Figure 10B and column 2, lines 37 –63 and column 16, lines 52 –67).

Regarding claim 12, Minamisawa teaches all the claimed limitations as recited in claim 10. Minamisawa further teaches of comprising: means for creating a schedule for circulating the cluster members in order as a tentative cluster head (column 2, lines 44 –63); and means for distributing the created schedule to the cluster members (column 2, lines 44 –63 and column 8, lines 40 –55).

Regarding claim 14, Minamisawa teaches all the claimed limitations as recited in claim 12. Minamisawa further teaches of wherein the means for creating a schedule

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creates the schedule when the means for comprehending communication conditions determines that there is a trouble with the communication conditions (column 2, lines 44 –63 and column 3, lines 12 –23).

Regarding claim 15, Minamisawa teaches of a communication terminal that can be configured as one of a plurality of nodes composing a cluster as well as serve as a cluster member that allows communication with other nodes of cluster head (Figure 1 and 10 A and 10 B), comprising: means for receiving a circulation schedule to determine an aptitude degree as a cluster head from the cluster head (column 2, lines 44 –63); means for comprehending communication conditions with other nodes composing the cluster based on the received circulation schedule (Figures 10A and 10 B and column 2, lines 44 –63); and means for sending the comprehended communication conditions to the cluster head (Figures 10 A and 10B and column 2, lines 37 –45).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2, 11, 16, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minamisawa (Minamisawa, US Patent No. 6,026,303) in view of Haartsen (Haartsen, "The Bluetooth Radio System," February 2000).

Regarding claim 2, Minamisawa teaches all the claimed limitations as recited in claim 1. Minamisawa further teaches of wherein the group communication is performed in a radio ad-hoc network of the master-slave configuration (column 2, lines 24- 28).



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Minamisawa does not specifically teach of wherein direct inter-slave communications are impossible (though does allude to such concept in column 1, lines 14 –25).

In a related art dealing with an ad-hoc communications, Haartsen teaches of wherein direct inter-slave communications are impossible (page 30, column 2, paragraph 2).

It would have been obvious to one skilled in the art at the time of invention to have included into Minamisawa's ad hoc communication system, Haartsen's ad hoc centralized master controlling unit, for the purposes of efficiently organizing an ad hoc communications system without too much overhead, as taught by Haartsen.

Regarding claim 11, Minamisawa teaches all the claimed limitations as recited in claim 10. Minamisawa further teaches of wherein the means for comprehending communication conditions comprehends the communication conditions by sending test data to each cluster member (column 6, lines 51 –62) and detecting an error rate (column 3, lines 12 –18).

Minamisawa does not specifically teach of packet.

In a related art dealing with an ad-hoc communications, Haartsen teaches of packet (page 30, column 2, paragraph 2).

It would have been obvious to one skilled in the art at the time of invention to have included into Minamisawa's ad hoc communication system, Haartsen's ad hoc packet data system, for the purposes of efficiently organizing a bursty ad hoc data communications system without too much overhead, as taught by Haartsen.

Regarding claim 16, Minamisawa teaches of terminal that can be configured as one of a plurality of radio stations composing a piconet as well as manage a plurality of slaves as a master (Figures 1, 10A, and 10B), comprising: means for comprehending communication conditions with the plurality of slaves (column 2, lines 37 –43); and means for delegating authority as a master to a predetermined slave composing the piconet to reconfigure the piconet if it is determined to be inappropriate as a master from the comprehended communication conditions (column 2, lines 44 –64).

Minamisawa does not specifically teach of Bluetooth.

In a related art dealing with an ad-hoc communications, Haartsen teaches of Bluetooth (as one example, page 30, column 2, paragraph 2).

It would have been obvious to one skilled in the art at the time of invention to have included into Minamisawa's ad hoc communication system, Haartsen's Bluetooth ad hoc packet data system, for the purposes of efficiently organizing a bursty ad hoc data communications system without too much overhead, as taught by Haartsen.

Regarding claim 17, Minamisawa in view of Haartsen teach all the claimed limitations as recited in claim 16. Minamisawa further teaches of comprising: means for creating a schedule for circulating the plurality of slaves in order as a tentative master (column 2, lines 44 –63); and means for distributing the created schedule to the plurality of slaves (Figure 10B and column 2, lines 37 –63 and column 16, lines 52 –67) and Haartsen teaches of composing the piconet (page 30, second column, paragraph 1).

Regarding claim 18, Minamisawa in view of Haartsen teach all the claimed limitations as recited in claim 17. Minamisawa and Haartsen further teach of comprising: means for receiving communication conditions with other radio stations when circulating

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the plurality of slaves as a tentative master (Minamisawa: column 2, lines 37 –63 and column 3, lines 12 – 18) and Haartsen: page 30, column 2, paragraph 2); and Minamisawa further teaches of means for determining to delegate authority as a master to the predetermined slave based on the received communication conditions (Figure 10B and column 2, lines 37 –63 and column 16, lines 52 –67).

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Minamisawa (Minamisawa, US Patent No. 6,026,303) in view of Tillgren et al. (Tillgren, US Patent No. 6,339,706).

Regarding claim 13, Minamisawa teaches all the claimed limitations as recited in claim 12. Minamisawa further teaches of wherein the schedule determines time for circulating a tentative cluster head among the nodes to search for an appropriate cluster head candidate (column 2, lines 44 – 63 column 11, lines 46 – 49; starting column 12, line 67 and ending column 13, line 4); time for each node to try to connect to the tentative cluster head (starting column 8, line 64 and ending column 9, line 4).

Minamisawa does not specifically teach of a period for which the reconnection is to be repeated if the tried connection failed (though does teach of reconnection in column 10, lines 48 –54).

In a related art dealing with ad-hoc communications, Tillgren teaches of a period for which the reconnection is to be repeated if the tried connection failed (starting column 9, line 66 and ending column 10, line 4).

It would have been obvious to one skilled in the art at the time of invention to have included into Minamisawa's ad hoc communications system, Tillgren's reconnect

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time, for the purposes allowing for a finite amount of retries by allocating a predetermined time, as taught by Tillgren.

***Citation of Pertinent Prior Art***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Inventor	Publication	Number	Disclosure
Haartsen	Ericsson Review	No. 3 1998	BLUETOOTH- The Universal Radio Interface for ad hoc, wireless connectivity
Callaway, Jr. et al.	US Patent	6,275,500	Method and apparatus for dynamic control of talk groups in a wireless network
Boyle	US Patent Application	2001/0012757	Ad-Hoc radio communication system
Hill et al.	US Patent	6,381,467	Method and apparatus for managing an ad hoc wireless network
Stillman et al	US Patent	5,551,066	Network link controller for dynamic designation of master nodes
Zavgren Jr. et al.	US Patent	6,711,409	Node belonging to multiple clusters in an ad hoc wireless network
Gubbi	US Patent	6,434,113	Dynamic network master handover scheme for wireless computer networks

***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tanmay S Lele whose telephone number is (703) 305-3462. The examiner can normally be reached on 9 - 6:30 PM Monday – Thursdays and on alternate Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay A. Maung can be reached on (703) 308-7745. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Tanmay S Lele  
Examiner  
Art Unit 2684

tsl  
September 3, 2004

  
**NICK CORSARO**  
**PRIMARY EXAMINER**